Exercise. Show that $\pi_0(BS^{-1}S^{iso}) = k_0(S^{iso})$.

Exercise. Let B be a bilinear form $B : \mathbb{R}^n \times \mathbb{R}^n \to \mathbb{R}^n$ then B can be described by an $n \times n$ matrix so that $u^T Bv = B(u, v)$ Define:

$$G_B = X \in Gl(n, \mathbb{R}) : B(Xu, Xv) = B(u, v) \text{ for all } u, v, \in \mathbb{R}^n\}$$

Here $Gl(n, \mathbb{R})$ is the group of general linear matrices.

Exercise. Let G be a group. Let G act on itself by a map˜and the stabiliser of an element $x \in G$ is written $t(x) = \{g \in G : \tilde{g}(x) = x\}$.

Exercise. Show that a group G acts transitively on Cosets.

Exercise. State the Cellular approximation theorem.

Exercise. What is the difference between singular and celluar homology?

Exercise. What is a 1-form?

Exercise. What is an excision? (Morse theory).

Exercise. A ring, R is local iff for every $r \in R$ either r is invertible or $1 - r$ is invertible.

Exercise. There exists a well defined homomorphism $f : \mathbb{Z}_p \to \mathbb{Z}p^d\mathbb{Z}$ where $f(a/b) =$ Show that $ker(f) = p^d\mathbb{Z}_p$. (Commutative algebra).

Exercise. If I is ideal in R and every element of R/I is invertible then I is the only maximal ideal in R.

Exercise. What is a CW module/ a space of CW type?

Exercise. What is a homology theory?

Exercise. What is Poincare duality?

Exercise. What is the smash product? Wedge product? - see Hatcher

Exercise. What is the precise dfinition of a suspension?

Exercise. What is the profinite top?

Exercise. What is a 1-form?